Applications of X-Ray Fluorescence (XRF) in the Glass Industry

Dr. Lynn M. Schurter
Owens Corning, Science and Technology Center
Granville, OH

A fusion method for fiberglass, glass and raw materials using $Li_2B_4O_7$ with graphite crucibles is detailed. This method has proven to be applicable to a wide range of sample types. When analyzing a wide range of materials and training new laboratory technicians, the simplicity of the method ensures good results.

Pressed powder sample preparation using a planetary mill to blend a solid binder with ground float glass did not yield adequate precision to enable production control and determine the cause of an upset. To address this need, an aqueous-based liquid binder method was developed for the analysis of float glass. This liquid binder method yields high precision results, does not require organic solvents and is relatively insensitive to the quantity of binder that is added to the specimen.

XRF semi-quantitative and quantitative analyses are used to support the Owens Corning Product Stewardship program and ensure compliance with regulations, which include RoHS and WEEE. XRF is very effective in screening glass, raw materials and product ingredients for heavy metal content. XRF is also utilized to screen glass compositions to verify all production fiberglass meets product specifications. These analyses ensure all new and significantly modified existing Owens Corning products are safe, environmentally sound from cradle to grave and that all products will perform as claimed.